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Eckert Seamans Cherin Mellott
Alcoa Technical Center
100 Technical Center Drive
Alcoa Center, PA 15069-0001

EXAMINER

LEUNG, JENNIFER A

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 05/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/950,012

Applicant(s)

WARNES ET AL.

Examiner

Jennifer A. Leung

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 January 2004.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 12-14 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-6 and 12-14 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 07 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

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DETAILED ACTION

Response to Amendment

1. Applicant's amendment submitted on January 26, 2004 has been received and carefully considered. Claims 7-11 are cancelled. Claims 13 and 14 have been newly added. Claims 1-6 and 12-14 remain active.

Response to Arguments

2. Applicant's arguments filed January 26, 2004 have been fully considered but they are not persuasive.

Regarding GERO et al.

Beginning on page 4 (fourth paragraph) Applicants argue,

“The Gero patent does not disclose a metal halide coating gas generator and instead discloses a silicon wafer processing tube device. The Gero patent fails to disclose generating a metal halide coating gas in the process tube 12. The Gero patent does not disclose a reaction between a metallic charge and a halide gas in the process tube 12 to generate a metal halide coating gas.”

The Examiner respectfully disagrees. As currently recited in claim 1 (lines 2-8), the apparatus structurally comprises,

“a base...
a housing having a metallic charge...
said housing having a region disposed on said base...
an air-tight polymeric seal comprising a polymeric material disposed between said region and said base, and
a heating device to heat the metallic material charge...”

The recitation of having a metallic charge “for reaction with a halide gas to produce a metal halide coating gas in said housing” (lines 3-4), however, has not been given patentable weight as the claim is drawn to an apparatus, and such limitation merely constitutes an intended use for the

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apparatus. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

Applicants further argue,

“The Gero patent describes an O-ring seal but does not disclose that it is a polymeric seal.”

The Examiner respectfully disagrees. As recited in column 3, lines 34-36, Gero et al. discloses, “The end cap seals the open lower end **28** of the process tube with *suitable sealing members such as an O-ring*.” As commonly defined, an O-ring is, “a flat ring made of rubber or plastic, used as a gasket.” (The American Heritage® Dictionary of the English Language, Fourth Edition. Copyright © 2000 by Houghton Mifflin Company). Both rubber and plastic are polymeric materials.

Applicants further argue,

“The Gero patent discloses a flange of the process tube 12 disposed on end cap 26 but there is no disclosure of a fluid passage in the flange itself for cooling the flange. The Examiner refers to gas delivery lines 42, 44, but these lines 42, 44 are disposed on the exterior of process tube 12, see Figure 5, remote from the flange that reside on base 26.”

Please note that as currently recited in claim 1, the apparatus comprises,

“... said housing *having a region* disposed on said base... *said region* having a fluid passage therein for cooling said region,” (lines 4-7).

As indicated in the rejection below, the “region” comprises the area including the open lower end **28** of housing **12**, the area also having a laterally extending flange (see FIG. 1). The fluid passage **42**, **44**, as best seen in FIG. 2-4, is also located in this area. The term “region” is

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commonly defined as, “a large, usually continuous segment of a surface or space, or an area.”

(The American Heritage® Dictionary of the English Language, Fourth Edition. Copyright ©

2000 by Houghton Mifflin Company). Thus, the fluid passage **42, 44** need only be located in the

general area of the flange. It is noted that the features upon which applicant relies (i.e., the fluid

passage being located *internal of the flange*) are not recited in the rejected claims. Although the

claims are interpreted in light of the specification, limitations from the specification are not read

into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Regarding BALDI

Beginning on page 5 (fourth paragraph), Applicants argue,

“... the Baldi patent does not disclose a metal halide coating gas generator disposed external of a coating retort, and instead discloses chromium diffusion packs in unsealed inner retorts 51, 52, 53 disposed inside an outer coating retort 12.”

However, please note that the recitation of the metal halide coating gas generator being *disposed external of a coating retort* as instantly recited in claim 1, lines 1-2, has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). In this case, the body of the claim begins with the transitional term “comprising” in line 2.

Applicants further argue,

“The lower flange of the coating retort 12 does not include a fluid passage internal

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thereof for cooling the flange.”

Please note that as currently recited in claim 1, the apparatus comprises,

“... said housing *having a region* disposed on said base... *said region* having a fluid passage therein for cooling said region,” (lines 4-7, with emphasis added).

As indicated in the rejection below, the “region” comprises the area near the lower opening of housing **12**, wherein the area further includes the laterally extending flange as shown in FIG. 1. Outer rim **20**, which defines the fluid passage, is also located in this area. The term “region” is commonly defined as, “a large, usually continuous segment of a surface or space, or an area.” (The American Heritage® Dictionary of the English Language, Fourth Edition. Copyright © 2000 by Houghton Mifflin Company). Thus, the fluid passage **20** need only be located in the general area of the flange. It is noted that the features upon which applicant relies (i.e., the fluid passage being located *internal of the flange*) are not recited in the rejected claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicants further argue,

“The Baldi patent does not disclose a polymeric seal.”

The Examiner respectfully disagrees. Baldi discloses, “... a bell-type furnace shell **10** placed around an outer retort **12** sealing strip **14** over a retort base **16** embedded in a concrete jacket to protect the sealing strip **14**,” (column 2, lines 42-47), wherein the sealing strip **14** inherently comprises an O-ring seal, as evidenced by the circular or “O” shaped interface between the outer retort **12** and retort base **16**. An O-ring is commonly defined as, “a flat ring made of rubber or plastic, used as a gasket.” (The American Heritage® Dictionary of the English Language, Fourth Edition. Copyright © 2000 by Houghton Mifflin Company). Both rubber and plastic are

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polymeric materials.

Applicants further argue,

“Surely, the examiner will appreciate that the Baldi coating retort 12 with inner retorts 51, 52, 53 containing chromium diffusion packs having burner ring components to be coated embedded therein does not remotely resemble Applicants metal halide coating gas generator of pending claims 1, 2, 6 and 12.”

However, Applicant’s arguments are not persuasive because they amount to a general allegation that the claims define a patentable invention without specifically pointing out *how the language of the claims* patentably distinguishes them from the references.

Regarding CHRISTENSEN

Beginning on page 6 (second paragraph), Applicants argue,

“... the Christensen patent does not disclose a metal halide coating gas generator and instead discloses a silicon wafer epitaxial deposition reactor. No metal halide coating gas is disclosed as being generated in the Christensen epitaxial deposition reactor 11.”

Please note that claim 1 (lines 2-8) currently recites an apparatus structurally comprising,

“a base...
a housing having a metallic charge...
said housing having a region disposed on said base...
an air-tight polymeric seal comprising a polymeric material disposed between said region and said base, and
a heating device to heat the metallic material charge...”

The recitation of having a metallic charge “for reaction with a halide gas to produce a metal halide coating gas in said housing” (lines 3-4), however, has not been given patentable weight as the claim is drawn to an apparatus, and such limitation merely constitutes an intended use recitation for the apparatus. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably

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distinguish the claimed invention from the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). Furthermore, a preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

Applicants further argue,

“The Christensen patent does not disclose a fluid passage in the bell jar 17 itself or in the heat reflector flange 79 itself for cooling purposes. Instead, the Christensen patent discloses a complex flange assembly 18 between the bell jar 17 and the heat reflector 78.”

Please note that as currently recited in claim 1, the apparatus comprises,

“... said housing *having a region* disposed on said base... *said region* having a fluid passage therein for cooling said region,” (lines 4-7, with emphasis added).

As indicated in the rejection below, the “region” comprises the area at the lower open end of the housing, or bell jar cover 17, further comprising flange assembly 18. A portion of the fluid passage, or cooling annulus 83, is further located in this area (see FIG. 1, 8). The term “region” is commonly defined as, “a large, usually continuous segment of a surface or space, or an area.” (The American Heritage® Dictionary of the English Language, Fourth Edition. Copyright © 2000 by Houghton Mifflin Company). Thus, the cooling annulus 83 need only be located in the general area of the bell jar cover 17 or flange assembly 18. It is noted that the features upon which applicant relies (i.e., the fluid passage being located *in the bell jar 17 itself* or *in the heat reflector flange 79 itself*) are not recited in the rejected claims. Although the claims are

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interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Regarding GERO et al. in view of APPLICANT'S DISCLOSED PRIOR ART

Beginning on page 6 (fifth paragraph), Applicants argue,

“The examiner should note that the Gero patent is silent regarding introducing a halide gas to react with a metallic charge to generate a metal halide coating gas in the process tube 12. Reliance on the Gero patent thus is misplaced.”

As currently recited in claim 1 (lines 2-8), the apparatus structurally comprises,

“a base...
a housing having a metallic charge...
said housing having a region disposed on said base...
an air-tight polymeric seal comprising a polymeric material disposed between said region and said base, and
a heating device to heat the metallic material charge...”

The recitation of having a metallic charge “for reaction with a halide gas to produce a metal halide coating gas in said housing” (lines 3-4), however, has not been given patentable weight as the claim is drawn to an apparatus, and such limitation merely constitutes an intended use recitation for the apparatus. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

Regarding GERO et al. in view of TOM et al.

Beginning on page 7 (second paragraph), Applicants argue,

“The examiner cites the Tom patent as showing fittings that the examiner proposes using in the Gero patent. However, the examiner ignores that the Gero patent teaches at

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column 6, lines 52-67 to form oxide films on silicon wafers. There thus is *no motivation in Gero to exclude air by using the claimed fittings*. The Tom patent adds nothing to the Gero patent in this regard.”

The Examiner respectfully disagrees. As taught by Tom et al., “... in semiconductor manufacturing, connections and fitting of high integrity and non-contaminating nature, such as VCR or Swagelok fittings, must be used, since many of the gases used are toxic or flammable, and all must be of exceptionally high purity,” (column 10, lines 46-50). Thus, such connections or fittings need not be provided to a semi-conductor apparatus only for the purpose of “excluding air”, as argued by applicants. The connections or fittings as taught by Tom et al. would likewise benefit the apparatus of Gero et al. by maintaining a high purity in the process gas during the semi-conductor wafer processing, and one having ordinary skill in the art would have been properly motivated to make the substitution of such connections or fittings in the apparatus of Gero in order to prevent contamination of the wafers by a low purity process gas.

Regarding BALDI in view of APPLICANT’S DISCLOSED PRIOR ART

Beginning on page 7 (fourth paragraph), Applicants argue,

“The Baldi patent does not disclose or suggest a coating gas generator having an O-ring seal that comprises an acid resistant polymeric material as recited in claim 3-4. As mentioned above, the Baldi patent does not even disclose a metal halide coating gas generator disposed external of a coating retort, and instead discloses chromium diffusion packs in unsealed inner retorts 51, 52, 53 disposed inside on outer coating retort 12 and in which diffusion packs the burner ring components to be coated are embedded.”

Again, please note that the recitation of the metal halide coating gas generator being *disposed external of a coating retort* as instantly recited in claim 1, lines 1-2, has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended

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use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). Regarding the polymeric seal, the same comments with respect to Baldi, above, apply. Furthermore, one would have been properly motivated to substitute an acid resistant polymeric material for the O-ring sealing strip **14** as disclosed in Baldi, since the substitution of known equivalent structures involves ordinary skill in the art, and acid resistant type O-rings are well known and commercially available, as evidenced by Applicant's disclosure.

Regarding CHRISTENSEN in view of APPLICANT'S DISCLOSED PRIOR ART

Beginning on page 7 (last paragraph), Applicants argue,

"The Christensen patent does not disclose or suggest a coating gas generator having an O-ring seal that comprises an acid resistant polymeric materials as recited in claim 4."

The Examiner respectfully disagrees. Christensen specifically discloses elastomeric O-rings **63**, **73** and **74**, wherein an elastomeric material is inherently polymeric. Furthermore, one would have been properly motivated to substitute an acid resistant type O-ring for the O-rings as disclosed in Christensen, since the substitution of known equivalent structures involves ordinary skill in the art, and acid resistant type O-rings are well known and commercially available, as evidenced by Applicant's disclosure.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Gero et al. (U.S. 5,948,300).

Gero et al. (FIG. 1; column 3, lines 24-50) disclose an apparatus comprising:

a base (end cap **26**),

a housing (process tube **12**) having a metallic charge (Si semiconductor wafers **22**); said housing **12** having a region (open lower end **28**, having a laterally extending flange region; see FIG. 1) disposed on said base **26**;

an air-tight seal (i.e., a suitable sealing member such as an O-ring; unlabeled; column 3, lines 34-37) disposed between said region **28** and said base **26**, inherently comprising a polymeric material for enabling the disclosed sealing action; said region **28** having a fluid passage (comprising gas delivery lines **42**, **44**; FIG. 2-4) for cooling said region (column 2, lines 19-42); and

a heating device (heating elements **16**) to heat the metallic charge **22**.

Instant claims 1-3 structurally read on the apparatus of Gero et al.

4. Claims 1, 2, 6 and 12-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Baldi (U.S. 3,764,371).

Regarding claims 1, 2 and 12-14, Baldi (FIG. 1; column 2, lines 42-48) discloses an apparatus comprising:

a base (retort base **16**) having an inlet (via conduit **31**);

a housing (outer retort **12**) having a metallic charge (i.e., chromium diffusion pack comprising

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MgCl loaded in inner retorts **51**, **52** and **53**, column 3, lines 15-21; wherein the pack inherently comprises a bed of metallic pellets; column 4, lines 43-50); said housing **12** having a region (area near the lower opening of housing **12**, comprising a laterally extending flange region; see FIG. 1) disposed on said base **16**, the lower opening of housing **12** defining an outlet for process gas, via conduit **32**;

an air-tight seal (sealing strip **14**) disposed between said region and said base **16**, inherently comprising a polymeric material for enabling the disclosed sealing action; said region having a fluid passage (outer rim **20**) for cooling said region; and

a heating device (i.e., by definition, a furnace with shell **10**; column 3, lines 29-32) to heat the metallic charge to a reaction temperature.

Regarding claim 6, Baldi discloses a gas distribution plate (spacer **50**; FIG. 1; column 2, lines 58-62) on which said metallic charge is disposed, said plate being disposed in said housing **12** downstream of said flange region in the direction of gas flow.

Instant claims 1, 2, 6 and 12-14 structurally read on the apparatus of Baldi.

5. Claims 1-3 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Christensen (U.S. 5,062,386).

Regarding claims 1-3, Christensen (FIG. 1, 8; column 4, lines 41-65; column 8, lines 14-59; column 9, lines 30-41; column 9, line 66 to column 10, line 6) discloses an apparatus comprising:

a base (base plate **16**),

a housing (bell jar cover **17**) having a metallic charge (Si wafers **13**); said housing **17** having a region (lower open end) disposed on said base **16**;

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an air-tight seal (i.e., sealing flange assembly **18** comprising elastomeric O-rings **63, 73, 74**) comprising a polymeric material disposed between said region and base **16**; said region having a fluid passage (cooling annulus **83**) for cooling said region; and a heating device (inductive heating coil **14**) to heat the metallic charge **13** to a reaction temperature.

Regarding claim 6, Christensen discloses a gas distribution plate (susceptor **12**; column 4, lines 43-50; FIG. 1, 8) on which said metallic charge **13** is disposed, said plate being disposed in said housing **17** downstream of said flange region **18** in the direction of gas flow.

Instant claims 1-3 and 6 structurally read on the apparatus of Christensen.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gero et al. (U.S. 5,948,300) in view of Applicant's Disclosed Prior Art.

Although Gero et al. is silent as to the O-ring seal comprising, specifically, an acid

resistant polymeric material, it would have been obvious for one of ordinary skill in the art at the time the invention was made to select such seal for the seal in the apparatus of Gero et al., on the basis of suitability for the intended use, since such seals are well known and commercially available in the art, as evidenced by Applicant's Disclosed Prior Art. (see page 7, last paragraph to page 8, first paragraph; i.e., commercially available acid resistant Viton O-ring). Additionally, it has been held that the substitution of known equivalent structures involves only ordinary skill in the art. *In re Fout* 213 USPQ 532 (CCPA 1982); *In re Susi* 169 USPQ 423 (CCPA 1971); *In re Siebentritt* 152 USPQ 618 (CCPA 1967); *In re Ruff* 118 USPQ 343 (CCPA 1958).

7. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gero et al. (U.S. 5,948,300) in view of Tom et al. (U.S. 5,531,971).

Gero (FIG. 1; column 3, lines 45-50) discloses an inlet fitting (port 30) and an outlet fitting (port 32). Although Gero is silent as to said inlet 30 and outlet 32 fittings comprising zero clearance fittings, it would have been obvious for one of ordinary skill in the art at the time the invention was made to select such a fitting type for the fittings in the apparatus of Gero et al., on the basis of suitability for the intended use, since such fittings are well known and commercially available in the art, as evidenced by Tom et al. In particular, Tom et al. teach that in semiconductor manufacturing, connections and fittings of high integrity and non-contaminating nature, such as VCR or Swagelok fittings, must be used, since many of the gases used are toxic or flammable, and all must be of exceptionally high purity (column 10, lines 46-50). Also, it would have been obvious for one of ordinary skill in the art at the time the invention was made to select an appropriate location for the inlet 30 and outlet 32 fittings, respectively, in the apparatus of Gero et al., on the basis of suitability for the intended use, since shifting of the

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location of parts is obvious. *In re Japikse*, 181 F.2d 1019, 1023, 86 USPQ 70, 73 (CCPA 1950).

8. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baldi (U.S. 3,764,371) in view of Applicant's Disclosed Prior Art.

Although Baldi is silent as to air tight seal **14** comprising an O-ring of acid resistant polymeric material, it would have been obvious design for one of ordinary skill in the art at the time the invention was made to select such an seal in the apparatus of Baldi, on the basis of suitability for the intended use, since such seals are well known and commercially available in the art, as evidenced by Applicant's Disclosed Prior Art. (i.e., Viton O-ring; page 7, last paragraph to page 8, first paragraph). Also, it has been held that the substitution of known equivalent structures involves only ordinary skill in the art. *In re Fout* 213 USPQ 532 (CCPA 1982); *In re Susi* 169 USPQ 423 (CCPA 1971); *In re Siebentritt* 152 USPQ 618 (CCPA 1967); *In re Ruff* 118 USPQ 343 (CCPA 1958).

9. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Christensen (U.S. 5,062,386) in view of Applicant's Disclosed Prior Art.

Although Christensen is silent as to the O-ring comprising an acid resistant polymeric material, it would have been obvious for one of ordinary skill in the art at the time the invention was made to select such material for the seal in the apparatus of Christensen, on the basis of suitability for the intended use, since such seals are well known and commercially available, as evidenced by Applicant's Disclosed Prior Art (i.e., Viton O-ring; page 7, last paragraph to page 8, first paragraph). Also, substitution of known equivalent structures involves only ordinary skill in the art. *In re Fout* 213 USPQ 532 (CCPA 1982); *In re Susi* 169 USPQ 423 (CCPA 1971); *In re Siebentritt* 152 USPQ 618 (CCPA 1967); *In re Ruff* 118 USPQ 343 (CCPA 1958).

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Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


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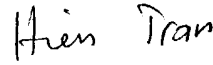
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Leung whose telephone number is (571) 272-1449. The examiner can normally be reached on 8:30 am - 5:30 pm M-F, every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jennifer A. Leung

April 26, 2004 



**HIEN TRAN
PRIMARY EXAMINER**